



# UNITED STATES PATENT AND TRADEMARK OFFICE

*lev*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,549	06/30/2003	J. Christopher Matayabas JR.	42P16901	4992

7590 10/02/2006  
Todd M. Becker  
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP  
Seventh Floor  
12400 Wilshire Boulevard  
Los Angeles, CA 90025-1026

EXAMINER

HA, NATHAN W

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/611,549	MATAYABAS ET AL.	
	Examiner	Art Unit	
	Nathan W. Ha	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Moeller (US 4,768,081, newly cited.)

In regard to claim 1, in fig. 1a, Moeller discloses an apparatus comprising:

a die B mounted on a substrate S, the die being connected to the substrate by a plurality of wires D; see also, col. 3, lines 1-10; and

a mold cap encapsulating the die and the plurality of wires, the mold cap comprising an electrically insulating portion G encapsulating substantially all the wires and the die (col. 3, lines 7-10), and a thermally conductive portion epoxy H encapsulating substantially all the electrically insulating portion, wherein the thermally conductive material is in contact only with the entire part of the surface of the electrically insulating material that is not in contact with the substrate, the die, or the wires.

In regard to claim 2, the die, or the microelectronic B, inherently comprise IC circuits. The term die means IC die, Integrated Circuit die, or memory die.

In regard to claim 3, Moeller further discloses that the electrically insulating material is a curable resin, silicon gel, for example. See col. 3, lines 5-8.

In regard to claim 5, Moeller further discloses that the thermal insulating material is resin curable material. See col. 3, lines 10-11.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moeller as applied to claims 1-3 and 5 above, and further in view of Distefano (US 6,309,915, previously cited.)

In regard to claims 4 and 6, Moeller discloses all of the claimed limitations as mentioned above except the materials of the filler such as silica, metal.

Distefano, in fig. 7, discloses an analogous semiconductor package including a substrate 5, IC die 2 mounted on the substrate, and further discloses filler 3, for example, that comprises highly thermal conductive fillers such as silver, silica, epoxy, etc., in order to prevent the package from overheating since these fillers are highly thermal conductive materials, therefore, heat will be dissipated from the package quickly. See col. 7, line 63- col.8, line 15. These are common fillers, however.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use fillers as taught by Distefano in Moeller's patent

in order to dissipate heat from the package, therefore, preventing the package from overheating.

In regard to claim 9, Distefano further discloses a heat dissipation device 10, or heat sink, attached to the package, and in thermal contact with the thermally conductive material, see fig. 4. This heat sink further enhances heat dissipation from the package, and it is very common in the art of semiconductor packaging.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to attach a heat sink to the package as taught by Distefano in order to keep the package under appropriate temperature, and further prevent the package from damage due to overheating.

### ***Response to Arguments***

6. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 2814

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Nathan Ha', with a long horizontal stroke extending to the right.

/Nathan Ha/  
September 16, 2006